

Travelling at light speed into the future philosophy essay



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Time passes by and we continue to carry on with our daily lives. Let us ask ourselves, “ What is time?” If the answer is “ time is just another physical quantity that is constantly progressing forward”, then there is much more to be learned. It is such a deceptively simple word. Time is so complex that even top physicists of the world will feel anxious to answer that question. The secrets of time and space have not fully been discovered. Till the dawn of Einstein’s “ Theory of Relativity”, time was considered to be a universal constant. But when Einstein submitted his papers, the scientific community was shattered. This led physicists into a completely new realm of physics which was never touched before. Einstein’s relativity theory stated that the only true constant in space was the “ speed of light” which is three hundred million metres per second and that this barrier could not be broken. He also stated that when an object approaches the speed of light, time simply slows down to prevent the breaking of the light speed barrier. He constructed this theory based on a paradox. He wondered that if we held a mirror in front of our face and travelled at the speed of light, will the light from our face not

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reach the mirror making us invisible since the relative velocity of light with respect to us is zero. Hence the main beauty of the relativity theory is that everything in the universe is relative. For example, the earth is big when compared to the moon but it is small when compared to the sun.

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Travelling at Light Speed into the Future:

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Let us suppose we invent a rocket that travels close to the speed of light. We board the rocket and go off into space and orbit the earth. Since we are trying to break the speed barrier, the time slows down in our space vehicle, as stated by Einstein. When we tie our lace it seems as though it takes place in five minutes. But, to a person on earth it would seem like many hours have passed by. Therefore time is going faster on earth with respect to us. So, if we orbit the earth at light speed for five years and return back, five hundred years would have passed on earth. We will have aged only five years though.

All though this makes sense on paper, practically there are many things that are out of reach considering our present technology. To achieve a speed close to three hundred million metres per second, we would need to harness enormous amounts of energy, roughly the energy content of a small star. The material used to engineer the " Time Machine" should be able to withstand great amounts of heat and vibrations. There are many more considerations that make time travel just an exotic dream of the human mind.

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Bending of Time: Space Time

In the theory of relativity, Einstein also stated space and time together behave like a fabric. The bodies which have mass and therefore a gravitational field are like weights placed on the fabric. They leave an impression at their point on the fabric, just like a ball placed on a flat piece of cloth. As the weight of the body increases, the impression becomes deeper. Therefore the fabric here, the "Space and Time" which are termed together as "Space-Time" fabric are bent around heavier bodies. This bending of the time in space lengthens the time period, meaning that time slows down in presence of gravity. In fact, this principle has also been practically proved. A set of atomic clocks were placed in satellites and on the earth and set to the exact same time. On observing after a few years, the atomic clock in the satellite was found to be slower by a few hundreds of a second. A Russian astronomer Sergei Krikorovich who has a little more than 800 days of space time is the first time traveller. He is one by fiftieth of a second younger than his actual age. The gravity of the earth has a negligible effect on space time. So physicists look towards a source of higher gravity, something through which even light can't escape, a "black hole". A black hole is formed by the death of a star. It has large density (theoretically infinite), therefore it has an enormous gravitational field. Its gravitational field is sufficient to slow down time by fifty per cent. Therefore if somehow we were to orbit the black hole for say about 5 years and then return back to earth, 10 years would have passed on earth. Again it would be a highly ambitious task to not get sucked into the black hole's gravitational field. But theoretically it is possible.

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Travelling through Wormholes:

Randomness

The theory of wormholes follows with the concept, “ Nothing is perfect”. It is a saying which is supported by chemistry as well. To exist in a stable form, the universe tries to exist in the lowest energy state possible. So if everything was to be perfect, a high sense of “ orderliness” would exist. For this orderly arrangement, more energy would be required. Therefore a sense of “ randomness” or “ imperfections” exists in nature. This randomness is called “ Entropy”.

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For example, imagine that you are playing snooker. The balls have been arranged in the triangular shape and you strike the cue ball towards the arrangement. When the cue ball strikes the set, the energy of the balls, which are orderly arranged, increases. To attain stability the set wants to dispose of this extra energy. Therefore the balls move away from the strike point and get arranged in a random order and then come back to rest (stable state).

Imperfections in Space

If there are such imperfections all around us, how can we ignore the possibility of tiny imperfections in emptiness (gaps in emptiness)? Therefore, “ Space” cannot be perfectly just empty continuous space. It has to have some sort of an imperfection. These imperfections were termed as “ Wormholes”. They are tiny gaps in space. They connect one point in space to another point. As space and time are related, the gap in space would also be

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a gap in time. The only problem with this theory is the minute size and rare occurrence of the wormhole. Although, if enough power is harnessed, the wormhole can be magnified and man can walk through different “time” destinations just like walking through a door. Wormhole travel is the most widely used principle for time travel in science fiction movies as well.

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The light speed travel and time bending theories are only possible for travelling into the future while wormholes can take us back to the past. But time travel into the past gives rise to many paradoxes. For example if time travel into the past was possible, why didn't any time traveller from the future visit us as yet? Another example could be: what if I went back in time to the point where my grandfather married my grandmother and avoided the incident from happening? I would be physically present at the place but logically speaking, my grandfather never married my grandmother which means that I was never even born. To avoid these paradoxes, scientists propose the existence of “parallel universes” in which different probabilities of the same lives exist. So when travel to a specific time, we go back to a parallel dimension in which any changes we make will not affect our universe.

Conclusion:

Considering these principles that have already made, it is certainly possible that in the future we may witness the birth of “Time Travel”. The universe is vast and old; it holds many secrets that we are yet to open. Man first started to study the science of the Earth. When he was satisfied with what he knew,

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he moved on to study the science of the heavens. This curiosity for knowledge is what makes the human race achieve a superior spot in nature. All said and done, "time travel" is another dream of man which is yet to be turned into reality.